

## Accessories

### Couplings

#### Coupling Materials and Characteristics

OMRON provides two types of couplings for different application conditions: Resin and metal. Select the best type for the application.

As a general rule, use metal couplings for high resolution and resin couplings for low resolution. (As a rough guide, a high resolution is one that exceeds 3,600 ppr.)  
 Even for applications requiring relatively low resolution, a metal coupling will provide more reliability in applications involving rapid acceleration/deceleration or for Encoders with high starting torque.

#### Comparison of Specifications for 6-mm Shafts

Machine specification	Material Resin (standard type)	Metal (aluminum, helical)
Eccentricity (mm)	0.5	0.15
Eccentricity (degrees)	6	3
Deviation in shaft direction (mm)	±0.4	±0.15
Allowable torque (N·m)	0.8	1.6
Torsion rigidity (Nm/rad)	7	28
Moment of inertia (kg·m <sup>2</sup> )	1.2 × 10 <sup>-7</sup>	6 × 10 <sup>-7</sup>
Weight (g)	4	12

### Characteristics

Material	Advantages	Disadvantages
<b>Resin (standard type)</b>	<ul style="list-style-type: none"> <li>• Low cost.</li> <li>• Easy shaft alignment when mounting.</li> <li>• Lightweight and low moment of inertia, placing a smaller load on the drive system.</li> </ul>	<ul style="list-style-type: none"> <li>• Low torsion rigidity and thus not suitable for high resolution.</li> <li>• Mounting is possible even if the shafts are greatly misaligned, which can cause damage from fatigue over long periods of application.</li> </ul>
<b>Metal (aluminum, helical)</b>	<ul style="list-style-type: none"> <li>• High torsion rigidity and thus suitable for high resolution.</li> <li>• Transmitted allowable torque is large.</li> </ul>	<ul style="list-style-type: none"> <li>• High cost.</li> <li>• Heavy and thus place a large load on the drive system.</li> <li>• The allowable shaft misalignment is small, so accurate positioning is required when mounting.</li> </ul>

### Coupling Suitability Table

○ : Suitable and provided with product, Δ: Suitable and sold separately, ---: Not suitable.

Couplings	Specification Shaft interior (tolerance *) exterior dia. Model	Resin, standard type					Resin, different end diameter		Metal	
		2 dia. (Height: 8), 9 dia.	4 dia. (Height: 8), 13 dia.	6 dia. (Height: 8), 15 dia.	8 dia. (Height: 8), 19 dia.	10 dia. (Height: 8), 22 dia.	6 dia., 8 dia., (Height: 8), 19 dia.	6 dia., 10 dia., (Height: 8), 22 dia.	6 dia. (Height: 8), 19.1 dia.	10 dia. (Height: 8), 25.4 dia.
Rotary Encoder Model/shaft dia.	Model	E69-C02B	E69-C04B	E69-C06B	E69-C08B	E69-C10B	E69-C68B	E69-C610B	E69-C06M	E69-C10M
E6A2-C 4 dia.		---	○	---	---	---	---	---	---	---
E6B2-C 6 dia.		---	---	○	---	---	Δ	Δ	Δ	---
E6C2-C 6 dia.		---	---	Δ	---	---	Δ	Δ	Δ	---
E6C3-C 8 dia.		---	---	---	Δ	---	Δ	---	---	---
E6D-C 6 dia.		---	---	○	---	---	Δ	Δ	Δ	---
E6F-C 10 dia.		---	---	---	---	Δ	---	Δ	---	Δ
E6H-C Hollow shaft interior dia.: 8 mm		Hollow-shaft Model; Coupling not required.								
E6J-C 2 dia.		○	---	---	---	---	---	---	---	---
E6C-N 6 dia.		---	---	Δ	---	---	Δ	Δ	Δ	---
E6CP-A 6 dia.		---	---	○ Sold separately only for E6CP-AG5C-C.	---	---	Δ	Δ	Δ	---
E6C3-A 8 dia.		---	---	---	Δ	---	Δ	---	---	---
E6F-A 10 dia.		---	---	---	---	○ Only Pre-wired Models	---	Δ	---	Δ
E6J-A 4 dia.		---	○	---	---	---	---	---	---	---

\*Tolerance conforms to JIS standard: JIS B 0401. →Refer to page 2.

(Unit: mm)

## Coupling Dimensions

Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

### E69-C02B



Material: Glass-reinforced PBT

Applicable model: E6J-C

### E69-C04B



Material: Glass-reinforced PBT

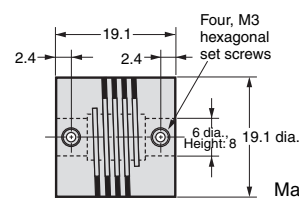
Applicable model: E6A2-C, E6J-A

### E69-C06B



Material: Glass-reinforced PBT

### E69-C06M



Material: Extra-super duralumin

Applicable model: E6B2-C, E6C2-C, E6D-C, E6C-N, E6CP-A

### E69-C10B



Material: Glass-reinforced PBT

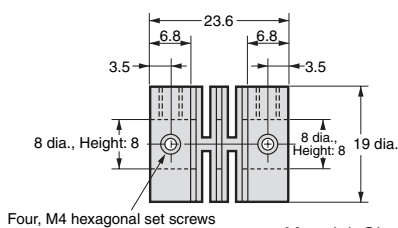
### E69-C10M



Material: Extra-super duralumin

Applicable model: E6F-C, E6F-A

### E69-C08B



Material: Glass-reinforced PBT

Applicable model: E6C3-A, E6C3-C

### E69-C68B

#### Model with Different End Diameter



Material: Glass-reinforced PBT

Applicable model: E6B2-C, E6C2-C, E6C3-C, E6D-C, E6C-N, E6CP-A, E6C3-A

### E69-C610B

#### Model with Different End Diameter



Material: Glass-reinforced PBT

Applicable model: E6B2-C, E6C2-C, E6D-C, E6F-C, E6C-N, E6CP-A, E6F-A

Standard hole dimensions (mm)		Tolerance (μm)
Min.	Max.	Height: 8
---	3	+14 0
3	6	+18 0
6	10	+22 0

## Flanges and Servo Mounting Brackets

### Flange and Servo Mounting Bracket Suitability Table

○: Suitable and provided with product, Δ: Suitable and sold separately, ---: Not suitable.

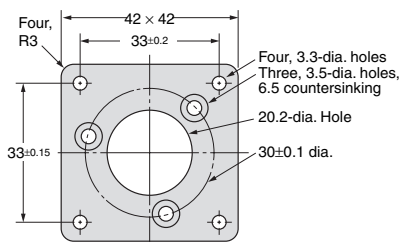
Rotary Encoder Model	Type Model Remarks	Flange					Servo Mounting Bracket			
		E69-FBA	E69-FCA	E69-FCA03	E69-FBA02	E69-FCA02	E69-FCA04	E69-1	E69-2	
E6A2-C		---	---	---	---	---	---	○ Provided with the E6A2-CWZ.	---	
E6B2-C		Δ	---	---	Δ	---	---	---	Δ	
E6C2-C		---	Δ	---	---	Δ	---	---	Δ	
E6C3-C		---	---	Δ	---	---	---	---	Δ	
E6D-C		---	---	---	---	---	---	---	○	
E6F-C		---	---	---	---	---	---	---	Δ	
E6H-C		Hollow-shaft Model; Flange not required.								
E6C-N		---	Δ	---	---	Δ	---	---	Δ	
E6CP-A		---	---	---	---	---	---	---	○	
E6C3-A		---	---	Δ	---	---	Δ	---	Δ	
E6F-A		---	---	---	---	---	---	---	○	

### Flange Dimensions

(Unit: mm)

Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

#### E69-FBA

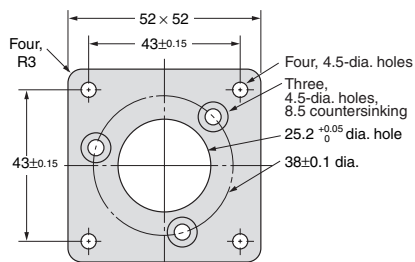


Material: SPCC  
Thickness: 3.2

Applicable model: E6B2-C

Note: Three phillips screws M3 × 6 provided

#### E69-FCA

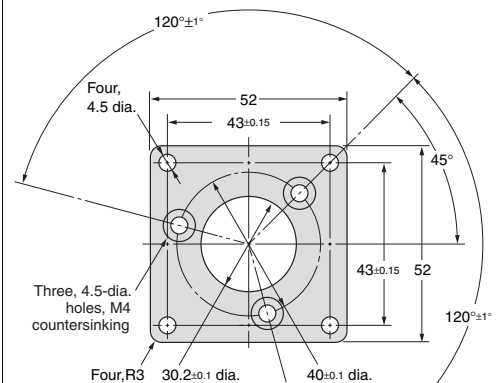


Material: SPCC  
Thickness: 3.2

Applicable model: E6C2-C, E6C-N

Note: Three phillips screws M4 × 8 provided

#### E69-FCA03

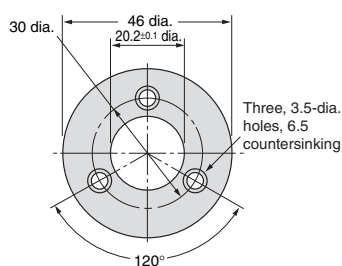


Material: SPCC  
Thickness: 3.2

Applicable model: E6C3-A, E6C3-C

Note: Three phillips screws M4 × 8 provided

#### E69-FBA02

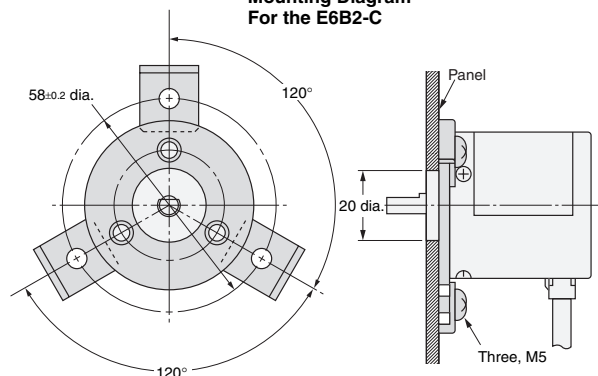


Material: SPCC  
Thickness: 3.2

Applicable model: E6B2-C

Note: Three phillips screws M3 × 10 provided, E69-2 Servo Mounting Bracket provided

#### Mounting Diagram For the E6B2-C



## E69-FCA02



## E69-FCA04

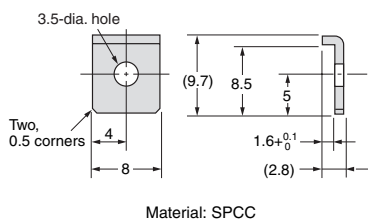


## Servo Mounting Bracket Dimensions

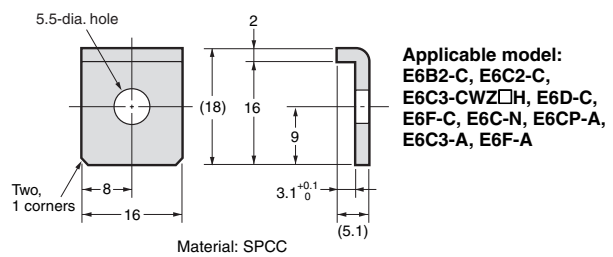
(Unit: mm)

Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

### E69-1 (Three brackets in a set.)



### E69-2 (Three brackets in a set.)



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